WHAT IS CLAIMED IS:

1. A composition for use in embolizing blood vessels, comprising a nucleophilic component and a component containing a conjugated unsaturated bond, whereby the composition undergoes crosslinking within the blood vessel.

2. The composition of claim 1 wherein the nucleophilic component is selected from the group consisting of thiols, amines and mixtures thereof.

3. The composition of claim 1 wherein the nucleophilic component comprises at least one thiol.

4. The composition of claim 1 wherein the nucleophilic component is at least one material selected from the group consisting of pentaerythritol-tetrakis(3-mercaptopropionate) (QT), Dithiothreitol (DTT), and poly(ethylene glycol) hexathiol.

5. The composition of claim 1 wherein the component containing a conjugated unsaturated bond comprises at least one material selected from the group consisting of acrylates, vinylsulfones, acrylamides, quinones and vinylpyridiniums.

6. The composition of claim 1 wherein the component containing a conjugated unsaturated bond is at least one acrylate.

7. The composition of claim 1 wherein the component containing a conjugated unsaturated bond comprises at least one material selected from the group consisting of poly(ethyleneglycol)diacrylate, poly(propylene glycol) diacrylate, pentaerythritol triacrylate, and poly(ethylene glycol) tetraacrylate.

8. The composition of claim 1 wherein the nucleophilic component is at least one thiol and the component containing a conjugated unsaturated bond is at least one acrylate.

9. The composition of claim 8 wherein the nucleophilic component is at least one material selected from the group consisting of pentaerythritol-tetrakis(3-

mercaptopropionate), Dithiothreitol (DTT), and poly(ethylene glycol) hexathiol.

10. The composition of claim 9 wherein the component containing a conjugated unsaturated bond is at least one material selected from the group consisting of poly(ethyleneglycol)diacrylate, poly(propylene glycol) diacrylate, pentaerythritol triacrylate, and poly(ethylene glycol) tetraacrylate.

11. The composition of claim 8 wherein the component containing a conjugated unsaturated bond is at least one material selected from the group consisting of poly(ethyleneglycol)diacrylate, poly(propylene glycol) diacrylate, pentaerythritol triacrylate, and poly(ethylene glycol) tetraacrylate.

12. The composition of claim 1 wherein the composition further comprises a buffer solution.

13. The composition of claim 1 wherein the composition further comprises a surfactant.

14. The composition of claim 1 wherein the composition further comprises a base.

15. The composition of claim 1 wherein the composition gels within the blood vessel within 30 minutes of introduction.

16. The composition of claim 1 wherein the composition gels within the blood vessel within 15 minutes of introduction.

17. The composition of claim 1 wherein the composition further comprises at least one additional agent selected from the group consisting of radiopaque agents and nonsteroidal anti-inflammatory compounds.

18. The composition of claim 4 further comprising a second thiole precursor.

19. The composition of claim 18 wherein the second thiole precursor is dithiothreitol (DTT).

20. The composition of claim 2 wherein the acrylate precursor is polypropylene glycol diacrylate (PPODA).

21. The composition of claim 2 wherein the acrylate precursor is polyethylene glycol diacrylate (PEGDA).

22. The composition of claim 2 wherein the acrylate precursor is pentaerythritol triacrylate (TA).

23. The composition of claim 12 wherein the buffer is a phosphate buffer.

24. The composition of claim 14 wherein the base is NaOH.

25. The composition of claim 1 wherein the composition comprises:

(a) a buffer solution;

(b) at least one nucleophilic component selected from the group consisting of pentaerythritol-tetrakis(3-mercaptopropionate), dithiothreitol (DTT), and poly(ethylene glycol) hexathiol;

(c) at least one component containing a conjugated unsaturated bond selected from the group consisting of poly(ethyleneglycol)diacrylate, poly(propylene glycol) diacrylate, pentaerythritol triacrylate, and poly(ethylene glycol) tetraacrylate; and

(d) a surfactant.

26. The composition of claim 26 wherein the surfactant is selected from the group consisting of sorbitan monooleate and polyethylene glycol-co-polypropylene glycol.

27. A composition for use in embolizing blood vessels, whereby the composition undergoes crosslinking within the blood vessel, wherein the composition comprises:

(a) a phosphate buffer solution;

(b) at least two nucleophilic components selected from the group consisting of pentaerythritol-tetrakis(3-mercaptopropionate), dithiothreitol (DTT), and poly(ethylene glycol) hexathiol; and

(c) at least three components containing a conjugated unsaturated bond selected from the group consisting of poly(ethyleneglycol)diacrylate, poly(propylene

glycol) diacrylate, pentaerythritol triacrylate, and poly(ethylene glycol) tetraacrylate.

28. A method of embolizing a blood vessel, comprising administering to the blood vessel a composition comprising a nucleophilic component and a component containing a conjugated unsaturated bond, whereby the composition undergoes crosslinking within the blood vessel.

29. The method of claim 28 wherein the nucleophilic component is selected from the group consisting of thiols, amines and mixtures thereof.

30. The method of claim 28 wherein the nucleophilic component comprises at least one thiol.

31. The method of claim 28 wherein the nucleophilic component is at least one material selected from the group consisting of pentaerythritol-tetrakis(3-mercaptopropionate) (QT) and poly(ethylene glycol) hexathiol.

32. The method of claim 28 wherein the component containing a conjugated unsaturated bond comprises at least one material selected from the group consisting of acrylates, vinylsulfones, acrylamides, quinones and vinylpyridiniums.

33. The method of claim 28 wherein the component containing a conjugated unsaturated bond is at least one acrylate.

34. The method of claim 28 wherein the component containing a conjugated unsaturated bond comprises at least one material selected from the group consisting of poly(ethyleneglycol)diacrylate, poly(propylene glycol) diacrylate, pentaerythritol triacrylate, and poly(ethylene glycol) tetraacrylate.

35. The method of claim 28 wherein the nucleophilic component is at least one thiol and the component containing a conjugated unsaturated bond is at least one acrylate.

36. The method of claim 35 wherein the nucleophilic component is at least one material selected from the group

consisting of pentaerythritol-tetrakis(3-mercaptopropionate) and poly(ethylene glycol) hexathiol.

37. The method of claim 36 wherein the component containing a conjugated unsaturated bond is at least one material selected from the group consisting of poly(ethyleneglycol)diacrylate, poly(propylene glycol) diacrylate, pentaerythritol triacrylate, and poly(ethylene glycol) tetraacrylate.

38. The method of claim 35 wherein the component containing a conjugated unsaturated bond is at least one material selected from the group consisting of poly(ethyleneglycol)diacrylate, poly(propylene glycol) diacrylate, pentaerythritol triacrylate, and poly(ethylene glycol) tetraacrylate.

39. The method of claim 28 wherein the composition further comprises a buffer solution.

40. The method of claim 28 wherein the composition further comprises a surfactant.

41. The method of claim 28 wherein the composition further comprises a base.

42. The method of claim 28 wherein the composition gels within the blood vessel within 30 minutes of introduction.

43. The method of claim 28 wherein the composition gels within the blood vessel within 15 minutes of introduction.

44. The method of claim 28 wherein the composition further comprises at least one additional agent selected from the group consisting of radiopaque agents and nonsteroidal anti-inflammatory compounds.

45. The method of claim 31 further comprising a second thiole precursor.

46. The method of claim 45 wherein the second thiole precursor is dithiothreitol (DTT).

47. The method of claim 29 wherein the acrylate precursor is polypropylene glycol diacrylate (PPODA).

48. The method of claim 29 wherein the acrylate precursor is polyethylene glycol diacrylate (PEGDA).

49. The method of claim 29 wherein the acrylate precursor is pentaerythritol triacrylate (TA).

50. The method of claim 39 wherein the buffer is a phosphate buffer.

51. The method of claim 42 wherein the base is NaOH.

52. The method according to claim 28 further comprising increasing the pH of the composition prior to introducing the composition into the reproductive duct.

53. The method according to claim 28 wherein the composition is introduced into the blood vessel through a catheter.

54. The method according to claim 53 wherein the catheter is a balloon catheter.

55. The method according to claim 28 wherein the blood vessel for embolization has one of either an arteriovenous malformation or any other abnormal vasculature.